structure the pictured situation and reduce ambiguity thus decreasing their projective value.—*L. Twyford*

ASH, PHILIP and JASPEN, NATHAN. *The Effects and Interactions of Rate of Development, Repetition, Participation and Room Illumination on Learning from a Rear-Projected Film.* Technical Report 269-7-39. Research by the Instructional Film Research Program, Pennsylvania State University for the Special Devices Center, Office of Naval Research, Port Washington, L. I., N. Y., October 12, 1953. 20 p.

Purpose: For teaching a skill using a rear-screen projector this study investigates the effect of the amount of room light, the effect of repetition, and the effect of participation using films with high and low rates of development.

Procedure: Using the task of assembly and disassembly of a breech block, 1100 trainees saw a film and were tested. Two versions of the film were used which varied in the speed with which they presented the material. Two conditions of amount of light were used: daylight viewing and darkened room. The effect of repetition was studied by showing the film once, twice, or three times. Some groups participated while the film was being shown by trying to assemble it.

Results: It was concluded that a slow rate of development is more helpful to learning than a fast rate. Repetitions of a film increased learning up to a point. Participation increased learning provided the rate of development of the film was slow enough to allow the learner to participate without missing important information. Although the experiment indicated that a high level of room illumination is detrimental to efficient learning, this was thought to be true only if a large number of learners are seated at extreme angles to, or distance from, the screen.—*L. Twyford*

McINTYRE, CHARLES J. and McCOY, EDWARD P. *The Application of Sound Motion Pictures for Recording Billet Analysis Information.* Technical Report 269-7-41. Research by the Instructional Film Research Program, Pennsylvania State University for the Special Devices Center, Office of Naval Research, Port Washington, L. I., N. Y., March 10, 1954. 15 p. Details reported in Bureau of Naval Personnel Technical Bulletin 53-6, November 15, 1953 (Available at the Special Devices Center). 159 p.

Purpose: This research concerns the feasibility of films to collect billet analysis information. How an operator performs his job or how a piece of equipment is used in training cannot easily be described or understood using words alone. Films were proposed as a means of recording this visual information.

Procedure: Job information needs were studied through interviews with billet analysts and with billet incumbents. Fifteen film examples were planned and produced. These included products of no-script and minimum script procedures; examples of magnetic and single system sound recording, lighting from simple to complex, five camera speeds, and pictures shot by individuals with differing degrees of photographic experience. Film analysts reviewed the films to indicate their usefulness.